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EXAMINER	
AUGHENBAUGH, WALTER	

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1794	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/724,596	PYNENBURG, RORY ALBERT JAMES	
	Examiner	Art Unit	
	WALTER B. AUGHENBAUGH	1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 December 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *49,55,56,59-61 and 71-77* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *49,55,56,59-61 and 71-77* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☒ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Applicant's amendments in claims 49 and 71 in the Amendment filed December 23, 2008 have been received and considered by Examiner.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. Claims 49, 55, 56, 59-61 and 71-77 are rejected under 35 U.S.C. 103(a) as being unpatentable over Louie et al. (USPN 5,591,540) in view of Chaloner-Gill (USPN 5,445,856) and in further view of Sasaki et al. (USPN 6,277,516) and in further view of Fulcher et al. (USPN 5,948,562).

In regard to claim 49, Louie et al. teach a laminate package for an energy storage device (col. 1, lines 5-10 and Fig. 3 and 4) having two terminals (items 34 and 36, col. 3, lines 21-24 and 54-67 and Fig. 1, 3 and 4). Louie et al. teach that the laminate package comprises a single

sheet of laminate material (item 12 or 28, Fig. 1). Louie et al. teach that the laminate package includes an inner barrier layer for defining a cavity to contain the energy storage device (Fig. 3) having two opposed portions (corresponding to layer 25 at the top of Fig. 1 and layer 23 at the bottom of Fig. 1 which are coextruded with a polymer that serves as a vapor barrier, see col. 2, lines 31-41) from between which the terminals extend from the cavity and that are heat sealed together along the edges of the two sheets (col. 2, lines 31-50, col. 4, lines 16-48 and Fig. 1, 3 and 4). Louie et al. teach a sealant layer (polymer sealing strip, item 30) disposed intermediate the inner barrier layer (item 25 or 23) and at least one of the terminals for sealing the inner barrier layer to that one of the terminals and for offering a barrier to the passage of one or more contaminants into the cavity (see Fig. 1 and 3, for example, item 30 is between item 25, an inner barrier layer, and item 36, a terminal which is adjacent the sealant layer, item 30). Louie et al. teach an outer barrier layer (corresponding to either layer 23 or 27 at the top of Fig. 1 and either layer 25 or 27 at the bottom of Fig. 1- layers 23 and 25 are coextruded with a polymer that serves as a vapor barrier and layer 27 is polyvinylidene chloride, which is a vapor barrier, see col. 2, lines 31-44) that is bonded to the inner barrier layer (Fig. 1). Louie et al. teach that the package has a metal layer (metal foils 14 and 26, col. 2, lines 50-55). Louie et al. teach that the packaged device "can be conformed to a given form factor" (col. 4, lines 48-54) and that the storage devices "can be made with flexible, i.e., conformable stacks" (col. 4, lines 62-65). Since the packaged device "can be conformed to a given form factor" (col. 4, lines 48-54) and is flexible, the package can be folded to "conform[] to a given form factor".

Louie et al. fail to teach that the package includes a single sheet of laminate material that is folded along its length such that the folded sheet of laminate material includes a folded edge

and three opposed edges, that the outer barrier layer comprises a metal layer, and that the terminals are aluminum and have a thickness of at least 50 microns.

Chaloner-Gill, however, disclose a laminate package for an energy storage device that is formed in the form of two superimposed laminates which have been heat sealed together along four edges, or in the form of a single sheet folded over onto itself with the heat sealable layer of the sheet sealed to itself on the three sides (that are not the sides of the sheet that is the side having the fold) (see, for example, col. 10, lines 43-48). Therefore, since Louie et al. teach that the packaged device "can be conformed to a given form factor" (col. 4, lines 48-54), which results in a great processing advantage over prior art packages (col. 4, lines 53-54), and that the storage devices "can be made with flexible, i.e., conformable stacks" (col. 4, lines 62-65), one of ordinary skill in the art would have recognized to have folded a single sheet of laminate material of Chaloner-Gill along its length such that the folded sheet of laminate material includes a folded edge and three opposed edges, and to then seal the heat sealable layer of the sheet to itself on the three sides of the sheet that are not the sides of the sheet that is the side having the fold since this structure is a well known suitable structure for forming packages for energy storage devices as a suitable alternative to two sheets heat sealed together along four edges as taught by Chaloner-Gill.

Sasaki et al., furthermore, disclose a container (item 5) for an energy storage device having two terminals (corresponding to the leads labelled "3") (col. 8, lines 15-25 and col. 17, lines 34-44 and Fig. 8) Sasaki et al. teach that aluminum is a well known material for use as a positive electrode current collector (col. 3, lines 4-6). Therefore, one of ordinary skill in the art would have recognized to have used aluminum as the material of a terminal and of the terminals

of Louie et al. since aluminum is a well known material for use as a positive electrode current collector as taught by Sasaki et al.

Fulcher et al., furthermore, disclose a package for energy storage devices comprising a metal layer as an outer layer (not as the outermost layer, but as an outer layer: see Applicant's characterization of the outer barrier layer as having plural layers, for example in claims 61 and 71) that is a vapor and moisture barrier layer (col. 4, lines 47-65 of Fulcher et al.). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have included a metal foil barrier layer as an outer layer of the package of Louie et al. since it is well known to use metal foil barrier layer as an outer layer of packages for energy storage devices as taught by Fulcher et al.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used aluminum as the material of a terminal and of the terminals of Louie et al. since aluminum is a well known material for use as a positive electrode current collector as taught by Sasaki et al. and to have folded a single sheet of laminate material of Chaloner-Gill along its length such that the folded sheet of laminate material includes a folded edge and three opposed edges, and to then seal the heat sealable layer of the sheet to itself on the three sides of the sheet that are not the sides of the sheet that is the side having the fold since this structure is a well known suitable structure for forming packages for energy storage devices as a suitable alternative to two sheets heat sealed together along four edges as taught by Chaloner-Gill.

In regard to the thickness of the terminals, since Louie et al. teach that the tabs (terminals) 34 and 36 are extensions (are part of) of current collectors 18 and 24, one of ordinary skill in the art would have recognized to have varied the thickness of the current collectors and

terminals of Louie in order to achieve the desired current collecting capability depending on the particular desired end result, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art in the absence of unexpected results. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). MPEP 2144.05 II.B.

In regard to claim 71, Louie et al. teach a laminate package for an energy storage device (col. 1, lines 5-10 and Fig. 3 and 4) having two terminals (items 34 and 36, col. 3, lines 21-24 and 54-67 and Fig. 1, 3 and 4). Louie et al. teach that the laminate package comprises a single sheet of laminate material (item 12 or 28, Fig. 1). Louie et al. teach that the laminate package includes an inner barrier layer for defining a cavity to contain the energy storage device (Fig. 3) having two opposed portions (corresponding to layer 25 at the top of Fig. 1 and layer 23 at the bottom of Fig. 1 which are coextruded with a polymer that serves as a vapor barrier, see col. 2, lines 31-41) from between which the terminals extend from the cavity and that are heat sealed together along the edges of the two sheets (col. 2, lines 31-50, col. 4, lines 16-48 and Fig. 1, 3 and 4). Louie et al. teach that the inner barrier layer comprises polyethylene (col. 2, lines 33-36) and is heat sealable (col. 4, lines 16-36).

Louie et al. teach a sealant layer (polymer sealing strip, item 30) disposed intermediate the inner barrier layer (item 25 or 23) and at least one of the terminals for sealing the inner barrier layer to that one of the terminals and for offering a barrier to the passage of one or more contaminants into the cavity (see Fig. 1 and 3, for example, item 30 is between item 25, an inner barrier layer, and item 36, a terminal which is adjacent the sealant layer, item 30). Louie et al. teach an outer barrier layer that is bonded to the inner barrier layer (Fig. 1), where the outer

barrier layer comprises two layers (for example, at the top of Fig. 1, layer 23 and layer 27 correspond to the two layers of the outer barrier layer as claimed in claim 71: layer 27 is polyvinylidene chloride, which is a vapor barrier, see col. 2, lines 31-44). Louie et al. teach that the package has a metal layer (metal foils 14 and 26, col. 2, lines 50-55).

Louie et al. teach that the packaged device "can be conformed to a given form factor" (col. 4, lines 48-54) and that the storage devices "can be made with flexible, i.e., conformable stacks" (col. 4, lines 62-65). Since the packaged device "can be conformed to a given form factor" (col. 4, lines 48-54) and is flexible, the package can be folded to "conform[] to a given form factor".

Louie et al. fail to explicitly teach that the package includes a single sheet of laminate material that is folded along its length such that the folded sheet of laminate material includes a folded edge and three opposed edges, that the outer barrier layer comprises a metal layer, and that the inner and outer barrier layers comprise melting points that correspond to the claimed melting points.

Chaloner-Gill, however, disclose a laminate package for an energy storage device that is formed in the form of two superimposed laminates which have been heat sealed together along four edges, or in the form of a single sheet folded over onto itself with the heat sealable layer of the sheet sealed to itself on the three sides (that are not the sides of the sheet that is the side having the fold) (see, for example, col. 10, lines 43-48). Therefore, since Louie et al. teach that the packaged device "can be conformed to a given form factor" (col. 4, lines 48-54), which results in a great processing advantage over prior art packages (col. 4, lines 53-54), and that the storage devices "can be made with flexible, i.e., conformable stacks" (col. 4, lines 62-65), one of

ordinary skill in the art would have recognized to have folded a single sheet of laminate material of Chaloner-Gill along its length such that the folded sheet of laminate material includes a folded edge and three opposed edges, and to then seal the heat sealable layer of the sheet to itself on the three sides of the sheet that are not the sides of the sheet that is the side having the fold since this structure is a well known suitable structure for forming packages for energy storage devices as a suitable alternative to two sheets heat sealed together along four edges as taught by Chaloner-Gill.

Fulcher et al., furthermore, disclose a package for energy storage devices comprising a metal layer as an outer layer (not as the outermost layer, but as an outer layer: see Applicant's characterization of the outer barrier layer as having plural layers, for example in claims 61 and 71) that is a vapor and moisture barrier layer (col. 4, lines 47-65 of Fulcher et al.). There, It would have been obvious to one of ordinary skill in the art at the time the invention was made to have included a metal foil barrier layer as an outer layer of the package of Louie et al. since it is well known to use metal foil barrier layer as an outer layer of packages for energy storage devices as taught by Fulcher et al.

Sasaki et al., furthermore, disclose that the walls of the container have a laminate structure having a sheath layer (item 17) that corresponds to the outer barrier layer as claimed by Applicant and a sealant layer (item 19) that corresponds to the inner barrier layer as claimed by Applicant (col. 11, lines 20-33 and Fig. 6A, 6B, 7 and 8). Sasaki et al. disclose that the melting point of the sheath layer (item 17, the outer barrier layer as claimed) is higher than the sealant layer (item 19, the inner barrier layer as claimed) (col. 11, lines 20-26). Sasaki et al. disclose that as a result of heating and cooling below the melting point of the material of the sealant layers,

the sealant layers (item 19) of the upper and lower walls of the container are strongly heat fusion bonded together (col. 12, lines 36-49). One of ordinary skill in the art would have recognized that the higher melting point of the outer barrier layer relative to that of the inner barrier layer enables the walls of the container to be heated to a temperature at which the material of inner barrier layer softens while the material of the outer barrier layer is unaffected so that the inner barrier layers are strongly heat fusion bonded together upon cooling to below the melting point of the inner barrier layer while the outer barrier layer is not affected. Therefore, one of ordinary skill in the art would have recognized to have selected the materials of the inner and outer barrier layers of Louie et al. such that the melting point of the outer barrier layer is higher than the melting point of the inner barrier layer in order to enable the walls of the container to be heated to a temperature at which the material of inner barrier layer softens while the material of the outer barrier layer is unaffected so that the inner barrier layers are strongly heat fusion bonded together upon cooling to below the melting point of the inner barrier layer while the outer barrier layer is not affected as taught by Sasaki et al.

The package that results from the proposed combination of Louie et al., Sasaki et al., and Fulcher et al. results in a package comprising an outer barrier layer comprises the claimed layers (see, for example, col. 2, lines 32-67 of Louie et al.).

In regard to claims 55, 56 and 72, Louie et al. fail to teach that the sealant layer is a resin containing between about 5% and 10% ethylene acrylic acid or about 6% to 9% ethylene acrylic acid. Sasaki et al. disclose that the heat fusion bonding seal material is ethylene acrylic acid copolymer, ethylene methacrylic acid copolymer, or combinations of these materials with any

polyethylene resin (col. 9, lines 15-21, col. 19, lines 35-38 and 47-62 and col. 19, line 65-col. 20, line 27) and that the resulting resins absorb very small amounts of water. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the mixture of ethylene acrylic acid copolymer and any polyethylene resin as the sealant of Louie et al., since a mixture of ethylene acrylic acid copolymer and any polyethylene resin is a suitable sealant material for use in containers of energy storage devices having terminals that absorb acceptable amounts of water as taught by Sasaki et al.

In regard to the claimed amount of ethylene acrylic acid of "between about 5% and 10%" as claimed in claim 55 and of "about 6% to 9%" as claimed in claim 56, since Sasaki et al. disclose that the heat fusion bonding seal material is ethylene acrylic acid copolymer, ethylene methacrylic acid copolymer, or combinations of these materials with any polyethylene resin (col. 9, lines 15-21, col. 19, lines 35-38 and 47-62 and col. 19, line 65-col. 20, line 27) and that the resulting resins absorb very small amounts of water, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have determined the relative amounts of ethylene acrylic acid in the mixture of ethylene acrylic acid copolymer and any polyethylene resin of Sasaki et al. required to achieve the optimal sealing and water absorption properties depending on the particular desired end result.

In further regard to claims 55, 72 and 73, in regard to the claimed melting points in claims 55, 72 and 73, Louie et al., Sasaki et al. and Fulcher et al. teach the container as discussed above in regard to independent claim 70.

In regard to claims 59-61, the package that results from the proposed combination of Louie et al., Sasaki et al., and Fulcher et al. results in a package comprising an outer barrier

layer comprises the claimed layers (see, for example, col. 2, lines 32-67 of Louie et al.). In regard to the claimed thicknesses, one of ordinary skill in the art would have recognized to have varied the thickness of the layers of the outer barrier layer that results from the proposed combination of Louie et al., Sasaki et al., and Fulcher et al. in order to achieve the desired barrier capability depending on the particular desired end result, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art in the absence of unexpected results. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). MPEP 2144.05 II.B.

In regard to the thicknesses of the layers recited in claims 73-75, one of ordinary skill in the art would have recognized to have varied the thickness of the layers of the outer barrier layer that results from the proposed combination of Louie et al., Sasaki et al., and Fulcher et al. in order to achieve the desired barrier capability depending on the particular desired end result, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art in the absence of unexpected results. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). MPEP 2144.05 II.B.

In regard to claims 76 and 77, Louie et al., Sasaki et al. and Fulcher et al. teach the container as discussed above in regard to independent claim 71.

Response to Arguments

4. Applicant's arguments are moot due to the new grounds of rejection made of record above in this Office Action.

The 35 U.S.C. 103(a) rejection of the claims over Louie et al. (USPN 5,591,540) in view of Sasaki et al. (USPN 6,277,516) and in further view of Fulcher et al. (USPN 5,948,562) made

of record in the previous Office Action has been replaced with the 35 U.S.C. 103(a) rejection of the claims over Louie et al. (USPN 5,591,540) in view of Chaloner-Gill (USPN 5,445,856) and in further view of Sasaki et al. (USPN 6,277,516) and in further view of Fulcher et al. (USPN 5,948,562) made of record in this Office Action, in response to Applicant's amendments in claims 49 and 71.

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Walter B. Aughenbaugh whose telephone number is (571) 272-1488. While the examiner sets his work schedule under the Increased Flexitime Policy, he can normally be reached on Monday-Friday from 8:45am to 5:15pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena Dye, can be reached on (571) 272-3186. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Walter B Aughenbaugh /
Examiner, Art Unit 1794

4/14/09

/Rena L. Dye/
Supervisory Patent Examiner, Art Unit 1794